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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/249,463	02/12/1999	TETSUYA IIZUKA	P98.2690	9962

7590 11/06/2002

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EXAMINER

TRAN, NHAN T

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/249,463

Applicant(s)

IIZUKA, TETSUYA

Examiner

Nhan T. Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 28.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

Figures 1 & 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 - 4 and 6 - 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishigami (US 6,198,507).

Regarding claim 1, Ishigami discloses a solid-state imaging device (see fig. 5) comprising:

a two-dimensional arrayed pixel provided with a photo-electric conversion unit for photo-electric converting an incident light to a signal charge and a vertical register for transferring the signal charge or a vertical register having a photo-electric conversion function for transferring a signal charge produced by photo-electric converting an incident light and a horizontal register for receiving and transferring the signal charge transferred by the vertical register (see fig. 5; col. 11, lines 13-22), a method of driving a solid-imaging device being characterized by comprising the steps of:

mixing signal charges of pixels distant from each other on one row transferred to the horizontal register from the vertical register within the horizontal register (see fig. 12A-C; col. 14, lines 20-25 & 59-67 to col. 15, lines 1-9); and

transferring the mixed signal charge in the horizontal direction (see fig. 12A-C; col. 15, lines 21-24).

Regarding claim 2, Ishigami also clearly discloses that after the signal charges of pixels distant from each other on said one row are separately transferred from the vertical register to the horizontal register (see col. 14, lines 38-40), one signal charge is transferred to the horizontal register, said one signal charge is transferred within the horizontal register and the other signal charge is transferred to the horizontal register, in which the signal charges are mixed (see fig. 12A-C; col. 14, line 52 – col. 15, line 15).

Regarding claim 3, when signal charges of pixels distant from each other said on one row are transferred from the vertical register to the horizontal register, the signal charges are transferred at every the vertical register of adjacent predetermined column (for matching the signal of the same color; see col. 14, lines 46-58).

Regarding claim 4, Ishigami further clearly shows that the pixel has a color filter thereon and pixels distant from each other on said one row are same in color (see fig. 7; col. 14, lines 52-53).

Regarding claim 6, Ishigami discloses a camera comprising a solid-state imaging device which has a two-dimensional arrayed pixel provided with a photo-electric conversion unit for photo-electric converting an incident light to a signal charge and a vertical register for transferring the signal charge or a vertical register having a photo-electric conversion function for transferring a signal charge produced and a horizontal register for receiving and transferring the signal charge transferred by the vertical register (see claim 1 for the accommodation of this limitation), a first mode (interlaced – S_{IL}) in which signal charge of pixels distant from each other on one row and to be transferred from the vertical register to the horizontal register are mixed within the horizontal register, the mixed signal charge is transferred in a horizontal direction and output (see fig. 12A-C, col. 14, lines 20-25 & 51-67 to col. 15, lines 1-15), and a second mode (noninterlaced – S_{NIL}) in which the register charges are separately transferred in a horizontal direction as a signal charge of each pixel without being mixed within the horizontal

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register, the first and second modes being switchable (see fig. 12-14; col. 17, lines 11-50 & col. 15, lines 52-62).

Regarding claim 7, the claimed limitations are accommodated with respect to claim 2.

Regarding claim 8, the claimed limitations are accommodated with respect to claim 3.

Regarding claim 9, the claimed limitations are accommodated with respect to claim 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishigami (US 6,198,507) in view of Takahashi et al. (US 6,288,744).

Regarding claim 5, Ishigami discloses a solid-state imaging element having a photo-electric conversion means (1) for photo-electric converting an incident light to a signal charge in

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a vertical direction and a horizontal register (4) for receiving and transferring the signal charge transferred by the vertical transferring means (2) in a horizontal direction, a solid-state imaging device being characterized in that a transfer gate unit (VH1, VH2) is provided between the vertical transferring and horizontal register, and transfer of electrode of first (ϕ VH1) and second phase (ϕ VH2), which form the transfer gate unit (see fig. 5, col. 11, lines 13-35).

Ishigami does not explicitly disclose that the first and second phase (shared shift registers) are disposed alternately at every constant column of the vertical transferring means. However, Takahashi et al. clearly show such shared shift registers (133, 134) are implemented in solid-state imaging device to enable the information charges in the channel regions of the vertical registers on different columns to be made different from each other in a direction along the vertical shift registers (see fig. 8; col. 11, lines 43-53).

Therefore it would have been obvious to one of ordinary skill in the art to implement the shared shift registers as taught by Takahashi et al. into Ishigami's solid-state imaging device to enable the information charges in the channel regions of the vertical registers on different columns to be made different from each other in a direction along the vertical shift registers.

Regarding claim 10, the claimed limitations are accommodated with respect to claim 5.

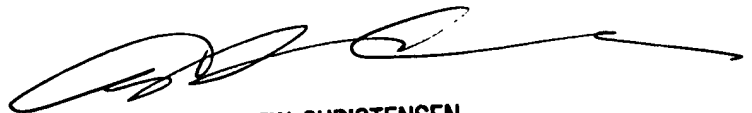
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (703) 605-4246. The examiner can normally be reached on Monday - Friday, 8:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B Christensen can be reached on (703) 308-9644. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

NT.
November 1, 2002



ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600